# Fast Track Troubleshooting

## Model: SMH1713*/XAA

**SE error.** Touch switch not available. Order control assy.

| | |
|---|---|
| SMH1713B/XAA | DE94-02411E |
| SMH1713W/XAA | DE94-02411F |
| SMH1713S/XAA | DE94-02411G |

**IMPORTANT SAFETY NOTICE – "For Technicians Only"** This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

**Publication # rsSMH1713 Revision Date 1/20/2012**

**SUPPORT INFORMATION**
Training — Plus One **http://my.plus1solutions.net/clientPortals/samsung/**
Help — GSPN **http://gspn3.samsungcsportal.com**
Samsung Product Support TV **http://support-us.samsung.com/spstv/howto.jsp**
Customer information videos and chat programs. Programs for Fridges, Laundry, Ranges & D/W

| Error Code | Cause and countermeasure |
|---|---|
| -SE- | Key short error (10 sec.). Replace assy. control panel or smart board. |
| E-11 | Sensor open error. Check unplugged sensor, wiring or smart board. If necessary, replace sensor. If error code appears when starting sensor function, replace smart board. |
| E-12 | Sensor short error. Check shorted sensor or smart board. If necessary, replace sensor. If error code appears when starting sensor function, replace smart board. |
| E-13 | Sensor T1 max time error. Check sensor. If necessary, replace sensor. If error code appears when starting sensor function, replace smart board. |

SENSOR TEST (QUICK TEST)
1. With 2 fingers touch and hold the following pads at the same time:
**Auto Defrost and Popcorn**
2. Observe diagnostic number in display (Numbers approximate).
- 15-185 (Normal-verify with "detection test" )
- 213 or Higher (Sensor failed to open, sensor unplugged, wiring or smart board).
- Less than 6 (shorted sensor or smart board).

**NOTE**: Only heater terminals (Black and Red leads) can be checked with an ohmmeter (30Ω).
**CAUTION**: DO NOT ATTEMPT TO CHECK SENSOR TERMINALS (White and Orange leads).
♣ CAN DAMAGE SENSOR.

**TO TEST BLOWER WINDINGS:** **1.** Disconnect power and remove grill. **2.** Open control panel and discharge capacitor. **3.** Continuity test across the two wires of the run capacitor should be approximately 120 ohms of resistance. This test allows you to read across all three windings at the same time.

## Oven Thermal Cutout
The oven thermal cutout (Cavity TCO) is located on the top side of the oven cavity beside the exhaust duct with a temperature rating of 248°F (120°C) and is **NOT** resettable.

## Hood Thermal Cutout
This cutout will protect the touch control from excessive heat by turning the vent fan on at low speed. If the surface units of the range are used for long periods of time heat will build up and could damage the microwave control. In order to prevent this, a thermal cutout is installed on the duct behind the control. This cutout will close (158°F/70°C - vent fan energized) and open (104°F/40°C - vent fan de-energized) depending on temperature.

## Magnetron Thermal Cutout
The magnetron thermal cutout is located above the leads to the magnetrons. It is designed to prevent damage to the magnetron if an overheated condition develops in the tube due to cooling fan failure, obstructed air ducts, dirty or blocked air intake. Under normal operation, the magnetron thermal cutout remains closed. However, when abnormally high temperatures are reached within the magnetron, the magnetron thermal cutout will open at 302°F (150°C) causing the oven to shut down. After the temperature drops to 140°F (60°C) it will reset and cooking will be able to resume.

## Bottom Thermal Cutout
During a fire on the stove the heat could be intense enough to close the Hood Thermal Cutout and force the fan to run. While at moderate high temperature we do want it to run, however during a fire it is advantageous to NOT have the vent fan running. So if a fire were to start on the stove top the Bottom Thermal Cutout would open at 248°F (120°C) and remove all power to the microwave oven. This cutout is **NOT** resettable.

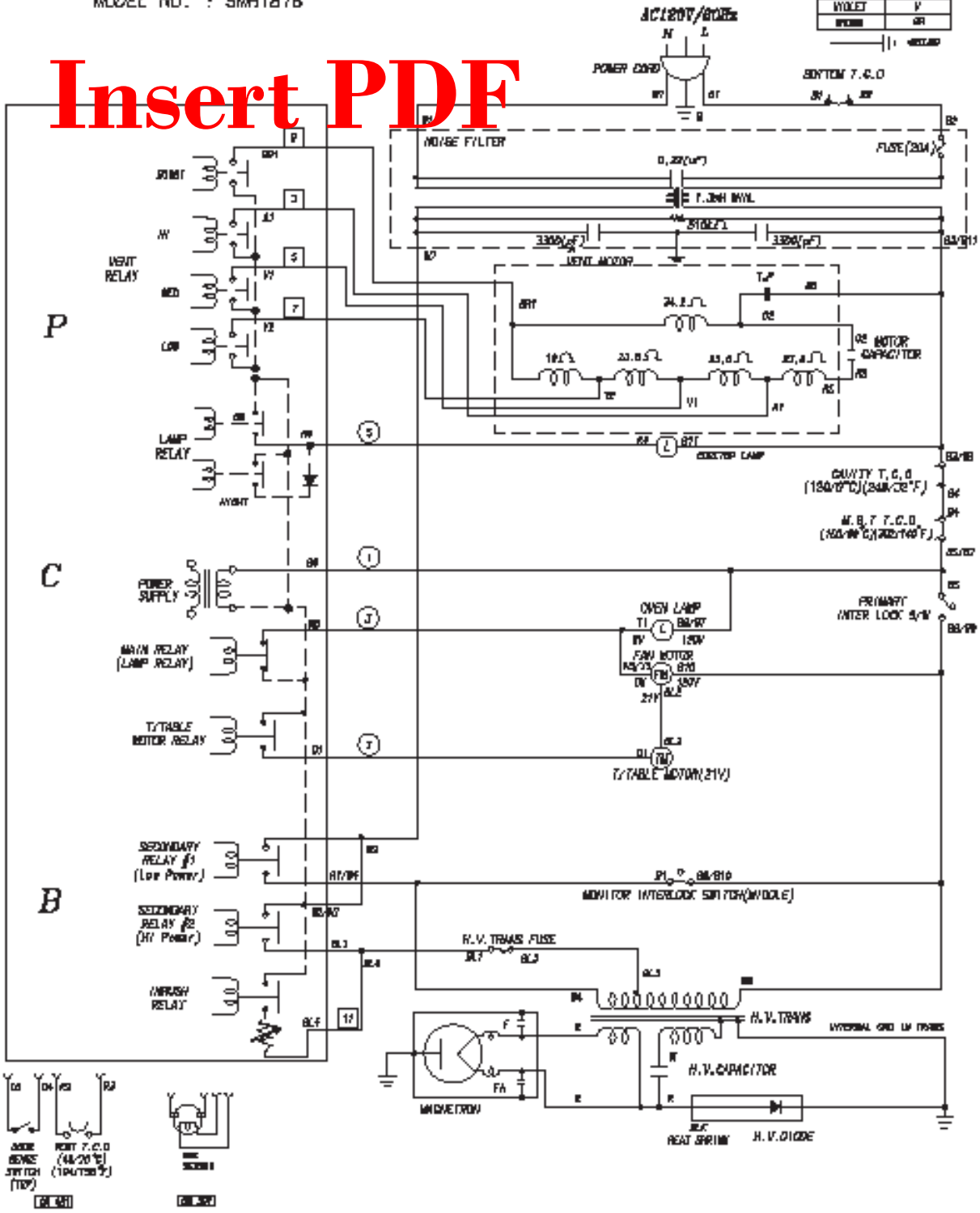
# SCHEMATIC DIAGRAM

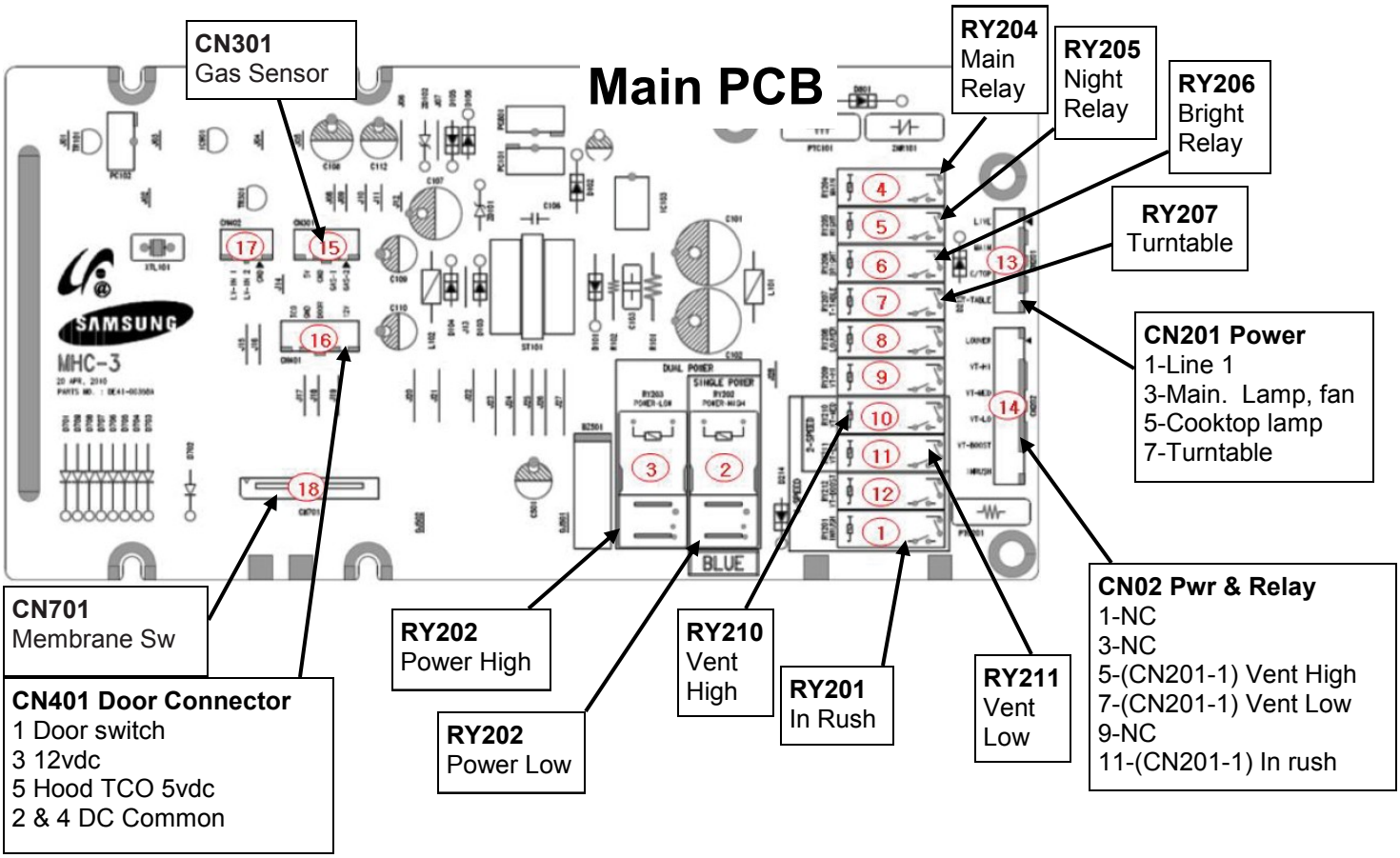
WARNING

POWER MUST BE DISCONNECTED

BEFORE SERVICING THIS APPLIANCE

MODEL NO. : SMH1816

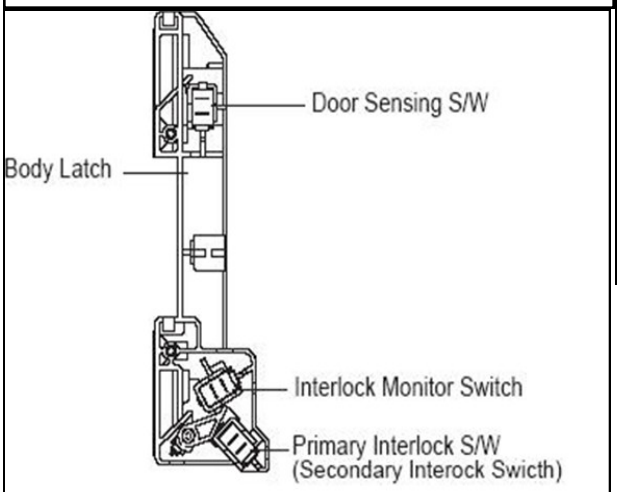





## Microwave cover assembly

The front of the top cover has flanges that must fit inside the front frame and vent, and the bottom goes above the bottom cover. Start with the left side and hold in place with one screw once engaged. Leave the display loose so you can see that the right side is engaged properly. Then mount display and the vent, ensuring the vent engages the flange.

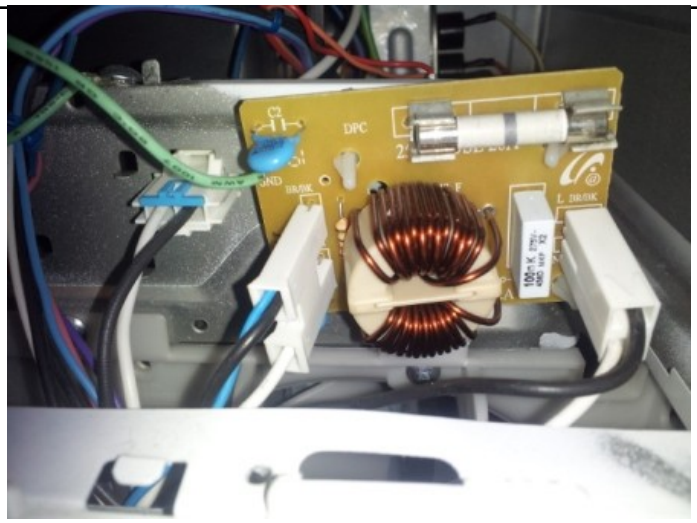
## Door Interlock




| | Door Open | Door Closed |
|---|---|---|
| Primary Interlock switch | ∞ | 0 |
| Monitor switch(COM-NC) | 0 | ∞ |
| Monitor switch(COM-NO) | ∞ | 0 |
| Door Sensing S/W (Secondary Interlock S/W) | ∞ | 0 |

## The fuse is located on the noise filter.

1. Disconnect power and remove grille and Assembly Control Box.
**2.** Replace the fuse.
**3.** When 20A fuse blows out by the operation of interlock monitor switch failure, replace the primary interlock switch, secondary interlock switch, door sensing switch, interlock monitor switch and power relay.
**4.** When the above four switches operate properly, check if any other part such as the control circuit board, blower motor or high



## Microwave Cooking Wattage Test

Fill a 1000ml plastic room temperature container with cool tap water, temperature of the water should be 55-65 degrees

Stir water with a thermometer and record the water temperature, remove thermometer.

Place the container in the center of the lowest shelf or center of the bottom of the microwave.

For units less than 1550 watts, operate the oven on high for exactly 63 seconds.

Using the thermometer, stir the water to check the temperature of the water.

Subtract the starting temperature from the final temperature; this will be the temperature rise.

**NOTE: Check line voltage under load, lower line voltage will lower the power output.**

| Temp Rise | Output | Temp Rise | Output |
|---|---|---|---|
| 5 | 194 | 23 | 891 |
| 6 | 232 | 24 | 930 |
| 7 | 271 | 25 | 969 |
| 8 | 310 | 26 | 1007 |
| 9 | 349 | 27 | 1046 |
| 10 | 387 | 28 | 1085 |
| 11 | 426 | 29 | 1124 |
| 12 | 464 | 30 | 1162 |
| 13 | 504 | 31 | 1201 |
| 14 | 542 | 32 | 1240 |
| 15 | 581 | 33 | 1279 |
| 16 | 620 | 34 | 1317 |
| 17 | 659 | 35 | 1356 |
| 18 | 697 | 36 | 1395 |
| 19 | 736 | 37 | 1434 |
| 20 | 775 | 38 | 1472 |
| 21 | 814 | 39 | 1511 |
| 22 | 852 | 40 | 1550 |

### Procedure for measurement of microwave energy leakage

1. Pour 275±15cc of 20±5°C(68±9°F) water in a beaker which is graduated to 600cc, and place the beaker in the center of the oven
2. Start to operate the oven and measure the leakage by using a microwave energy survey meter.
3. Set survey meter with dual ranges to 2,450MHz.
4. When measuring the leakage, always use the 2 inch spacer cone with the probe. Hold the probe perpendicular to the cabinet door. Place the spacer cone of the probe on the door and/or cabinet door seam and move along the seam. The door viewing window and the exhaust openings moving the probe in a clockwise direction at a rate of 1 inch/sec. If the leakage testing of the cabinet door seam is taken near a corner of the door, keep the probe perpendicular to the areas making sure that the probe end at the base of the cone does not get closer than 5 cm to any metal. If if gets closer than 5 cm, erroneous readings may result.
5. Measured leakage must be less than 4mW/cm2 after repair and adjustment.

*Maximum allowable leakage is 5mW/cm2. 4mW/cm2 is used to allow for measurement and meter accuracy.*

| M/W Information | | |
|---|---|---|
| Specifications | M/W Power | 1000 Watts |
| | M/W Weight | 52.7 Lbs |
| High Voltage Transformer | Primary | 0.43Ω |
| | Secondary | 120-125Ω |
| | Filament | 0.0Ω |
| Motors | Vent at run cap (checks all windings) | 120Ω |
| | TT & Stirrer Motors | 120Ω |
| | Fan Motor | 32-40Ω |

## Safety precautions

Some semiconductor (“solid state”) devices are easily damaged by static electricity. Such components are called **Electrostatically Sensitive Devices (ESDs).** Examples include integrated circuits and field-effect transistors. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground.

**High Voltage Warning** Do not attempt to measure any of the high voltages --this includes the filament voltage of the magnetron. High voltage is present during any cook cycle. Before touching any components or wiring, always unplug the oven and discharge the high voltage capacitor

**WARNING:** It is critical to route wires and wire harness identical to the way they were, to prevent electromagnetic interference causing possible fault codes.